

KNOW ALL ABOUT

EARTH

the
Blue
MaRvel!



PEARSON
Longman



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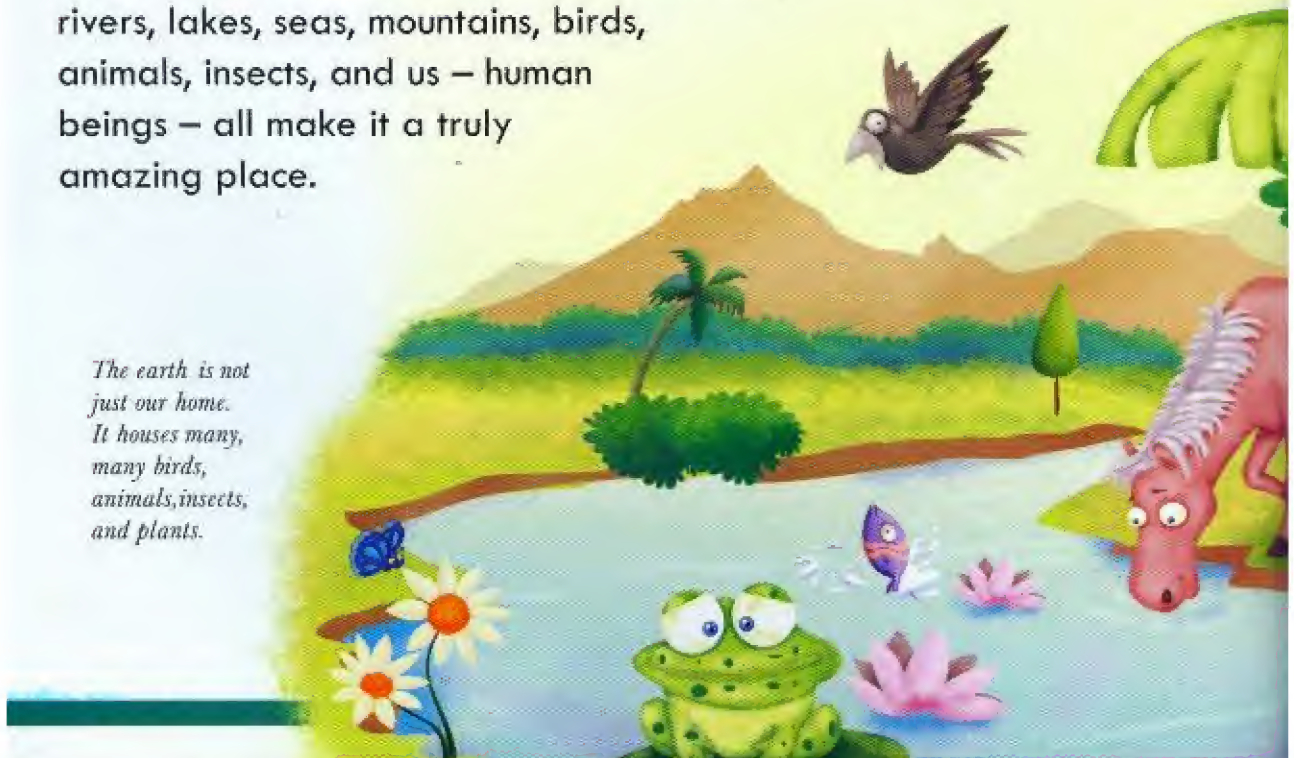
OUR BEAUTIFUL EARTH

If you were to fly really high up into the sky, you would be greeted by a beautiful sight. You would see a planet—white, green, brown, but mostly blue. That's the earth—home for you and me.

Beautiful earth

The earth, our planet, looks just as beautiful from above as it does around us. The trees, rivers, lakes, seas, mountains, birds, animals, insects, and us — human beings — all make it a truly amazing place.

The earth is not just our home. It houses many, many birds, animals, insects, and plants.





The living planet

The earth contains all the things to make life possible—air, water, and soil. And you know what? Water covers three-quarters of our earth! Life exists because of this water.

Earth:

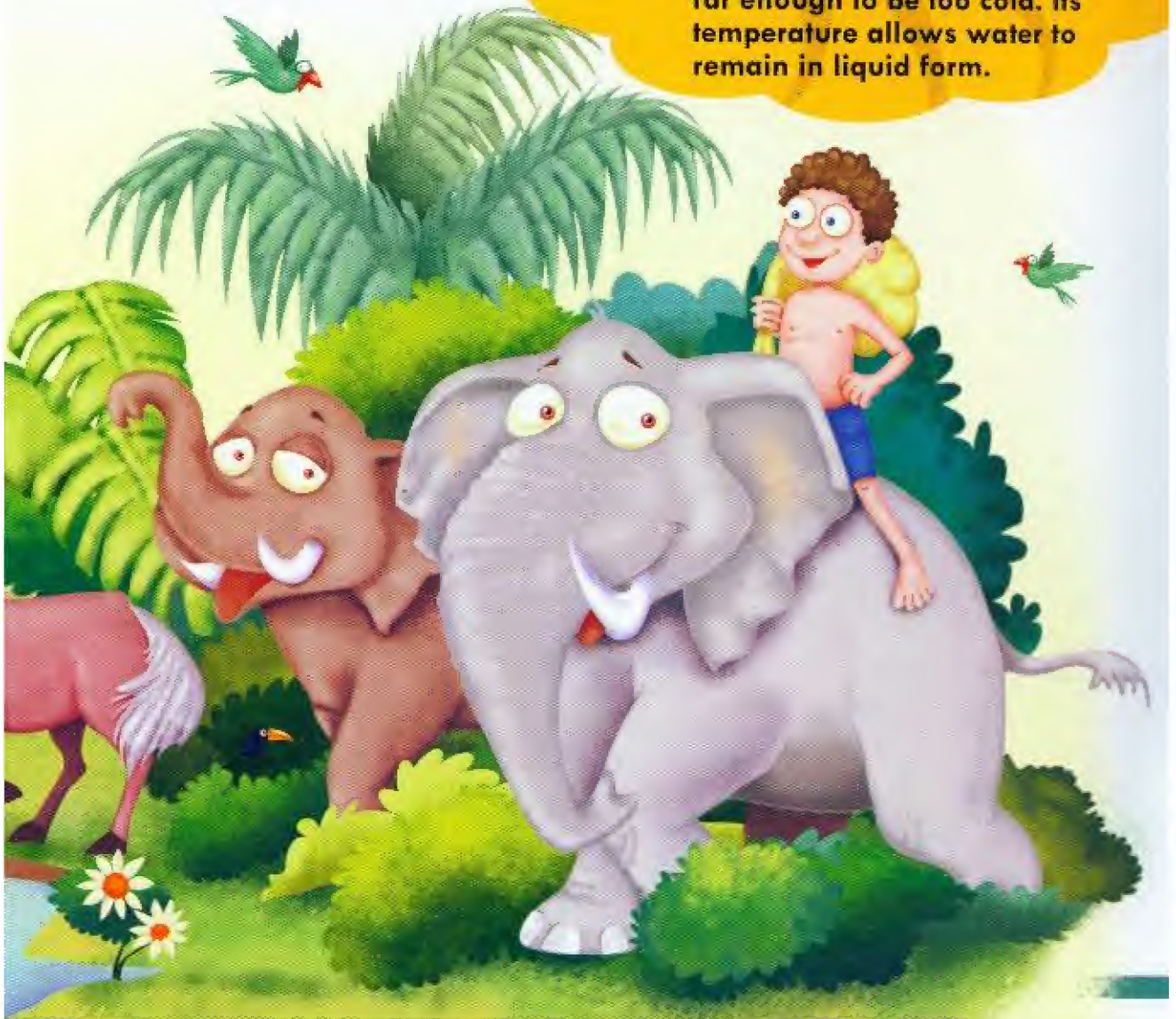
THE BLUE MARBLE

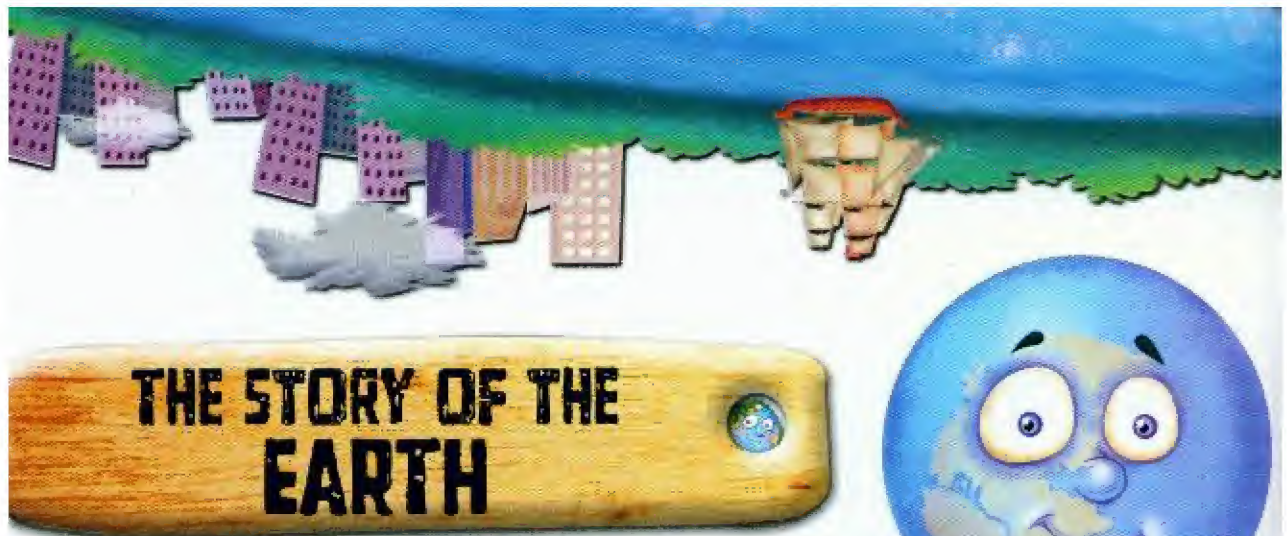
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DID YOU KNOW



The earth is the third planet from the sun. So, it is not close enough to be too hot and not far enough to be too cold. Its temperature allows water to remain in liquid form.





The earth was formed almost 4.5 billion years ago. Just as we grow year by year, the earth too is constantly moving and changing, but so slowly that we cannot feel it.

A big piece of land

Scientists believe that when the earth was formed, all the land was joined together to form a single piece of land, or continent, called Pangaea, meaning 'all earth'. So, if you wanted to go from India to Australia, you could have just hopped across! Cool, huh!?

EARTH-225 MILLION YEARS AGO

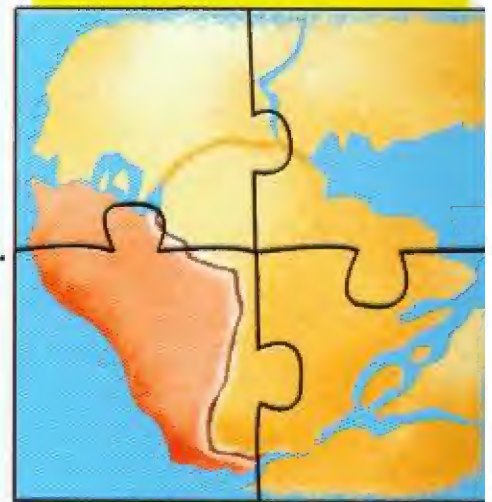




Drifting apart

The earth has large solid blocks called plates. When these plates move, the continents or oceans above them also move. Over millions of years, Pangaea has moved and broken into the different continents. These changes are still happening.

Alfred Wegener, a German scientist, was the first to suggest that the continents drift.



FUNNEE



Take a world map and cut out the continents. Move South and North America towards Africa. The bulge of Africa fits into the coast of North America, while South America fits the coast of Africa under the bulge!



THE EARTH COOLS!



Billions of years ago, the earth was a mix of hot rocks and gases. Slowly, it cooled and the hot steam that covered it began to turn into water.

Crawling out to land

The earliest forms of life began in water, from tiny micro-organisms to the first sea plants. Then came simple sea animals like sponges and, later, fish.



Sea animals and plants developed seven hundred million years ago





Earth:

THE BLUE MARBLE

6-7

When the earth was formed about 4.5 billion years ago, volcanoes spewed a whole lot of lava and gas.

The earliest life forms developed three billion years ago.

Crawling out to land

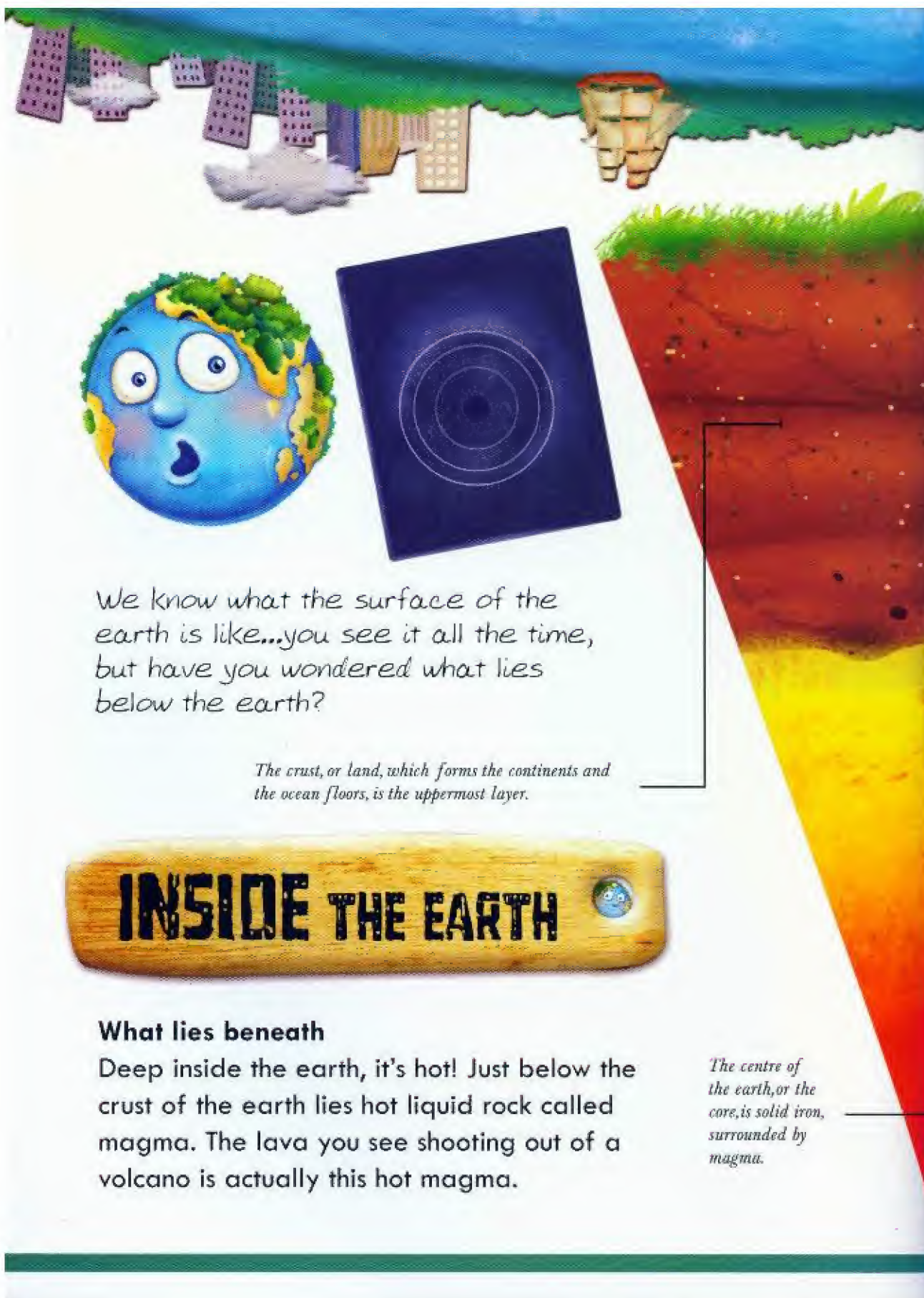
Soon, plants began to grow on seashores, and sea creatures started moving out on to the land. They developed legs and lungs to live on land. A few million years later, land had insects, plants, birds, and animals—some as big as dinosaurs!

BELIEVE IT OR NOT!



About ten million years ago, ape-like creatures appeared. Scientists think that we may have descended from them! But human beings like us really appeared only about 35,000 years ago!

Dinosaurs appeared on the earth 2.5 million years ago.



We know what the surface of the earth is like...you see it all the time, but have you wondered what lies below the earth?

The crust, or land, which forms the continents and the ocean floors, is the uppermost layer.

INSIDE THE EARTH

What lies beneath

Deep inside the earth, it's hot! Just below the crust of the earth lies hot liquid rock called magma. The lava you see shooting out of a volcano is actually this hot magma.

The centre of the earth, or the core, is solid iron, surrounded by magma.



Earth:

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8-9

The egg

The layers of the earth are similar to those of an egg. The yolk is like the earth's core. It is as hot as the surface of the sun! The white is the mantle, while the thin outer shell is the earth's crust.



A SLICE OF THE EARTH

Magma is found from below the crust to the innermost part. The mantle is a layer made up of magma and rock

DID YOU KNOW



The centre of the earth is as hot as the surface of the sun!!

Nothing average about this!

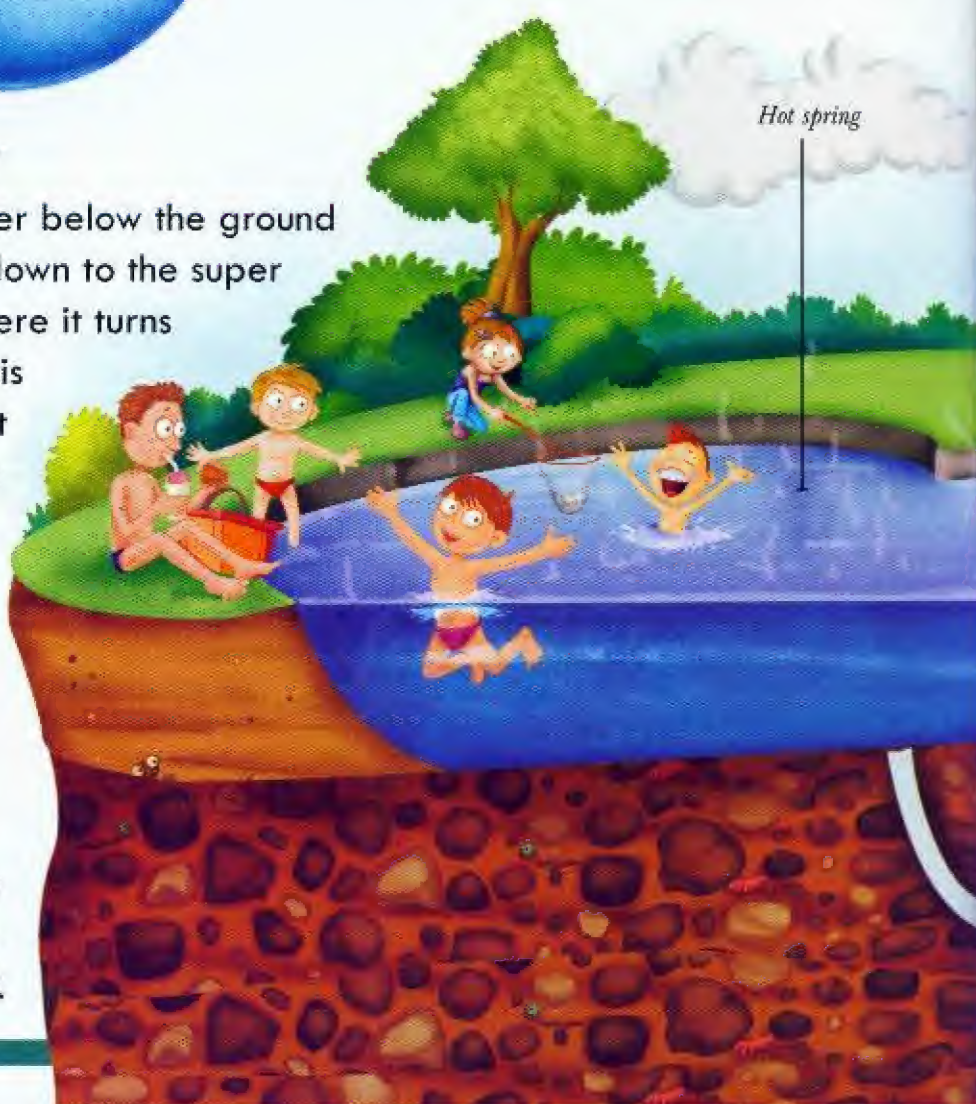
If you were to dig four metres below ground, you would find that the earth's temperature remains, more or less, the same throughout the year. And that temperature would nearly be equal to average temperature of the place!



The core and mantle of the earth are so hot that they provide us with a lot of energy. The energy from the heat of the earth is known as geothermal energy (geo - earth, thermal - heat).

Ouch, it's hot!!

Sometimes, water below the ground makes its way down to the super hot magma, where it turns boiling hot. If this water comes out through a crack on the earth's surface, we get a hot spring. It is like a pond, but its water is hot! If the hot water explodes into the air, it is called a geyser.





GEOTHERMAL ENERGY

Earth:

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10-11

Water inside the earth is heated and finds its way to the surface in the form of hot springs and geysers.



Geyser

A giant bathtub
People have been using geothermal energy for a long time. Hot springs are used for cooking and even for bathing. The hot water is used to heat buildings and greenhouses.

DID YOU KNOW



Sometimes, the water in hot springs has a high quantity of salts, such as sulphur, dissolved in it. This water can treat skin diseases.



Geothermal energy is now used to make electricity! Holes are drilled into the ground, and pipes are lowered, so that the steam or hot water underground comes up through these pipes. It is bit like putting a straw into a hot drink!



Power of steam!

The steam from the hot water provides the force to spin a turbine. The turbine is attached to a generator, which produces electricity! As the steam cools, it turns into water and is sent back into the earth through another pipe!

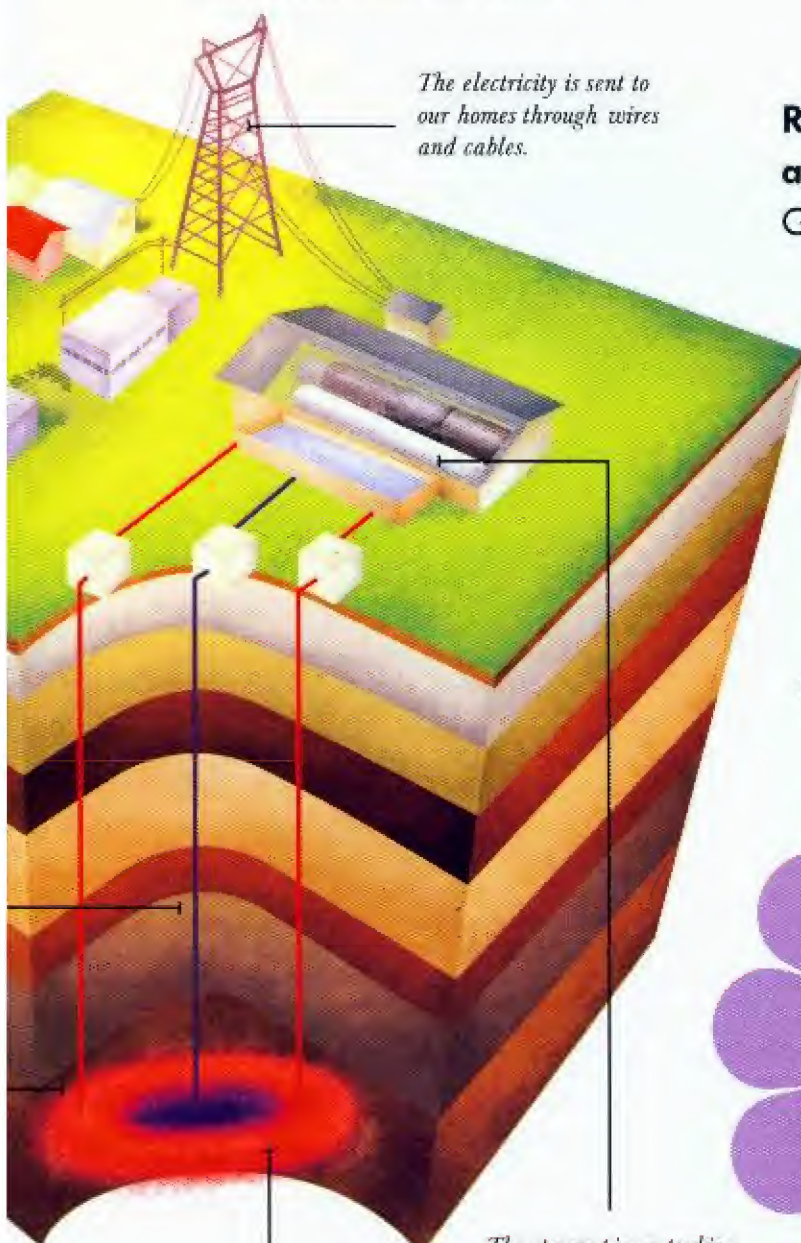
Cold water is pumped into the earth.

Heat within the earth turns the cold water into steam.





GEOHERMAL PLANT



The electricity is sent to our homes through wires and cables.

Steam is pumped back from inside the earth.

The steam spins a turbine, attached to a generator. This produces electricity.

Earth:

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12-13

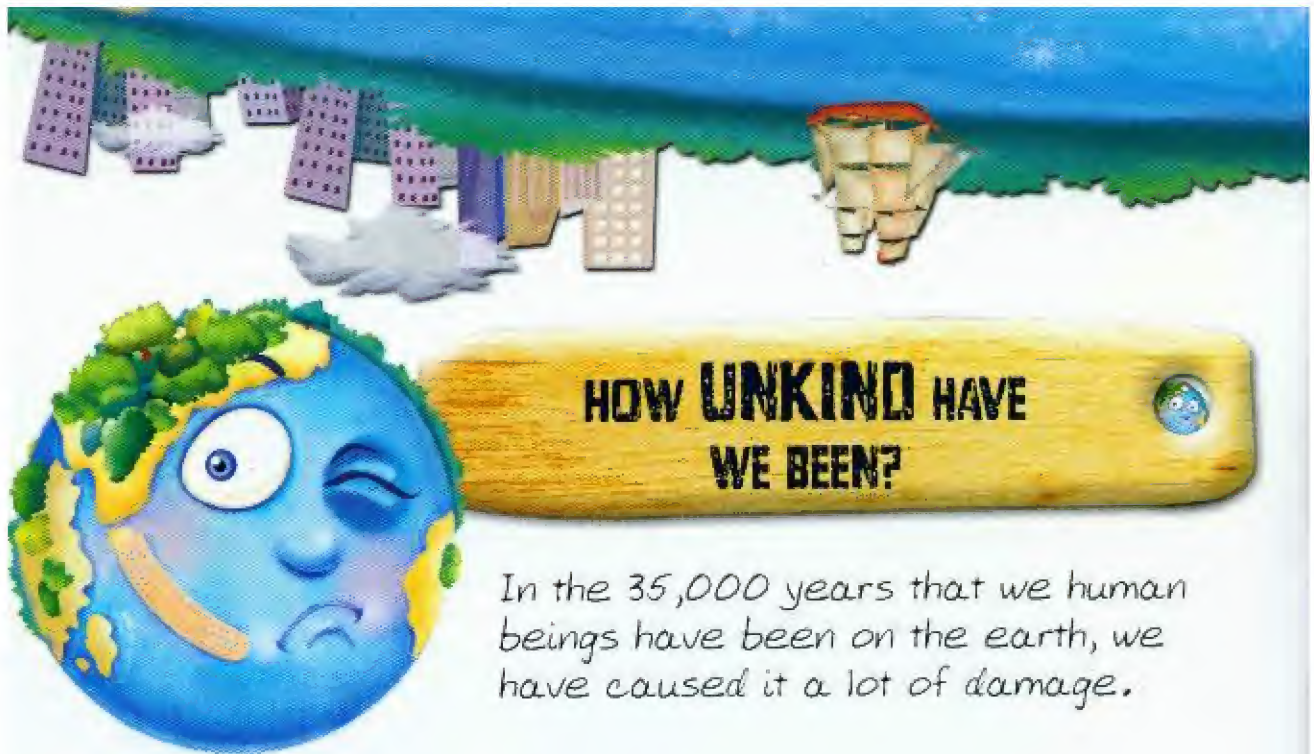
Renewable and clean

Geothermal energy is renewable, as there will always be hot water inside the earth. So, this energy will never be in short supply! No fuel is burned to produce electricity, so the environment does not get polluted!

DID YOU KNOW



California, in the United States, has been producing geothermal electricity since 1960! It produces half of the world's geothermal electricity.



HOW UNKIND HAVE WE BEEN?

In the 35,000 years that we human beings have been on the earth, we have caused it a lot of damage.

Wounding the land and its creatures

We have cut forests, which has not only reduced the number of trees, but also destroyed the homes of animals. Many animals that lived in the forests are now dying out, or becoming extinct. We have used harmful chemical fertilizers to make crops grow faster. As a result, the land is now badly damaged.



Today, more than 80 per cent of the earth's original forests have been cut.



Spoiling the air

We have burnt fuel that has sent loads of carbon dioxide into the air. Increased carbon dioxide in the atmosphere is now causing the earth to heat up. This is leading to changes in the climate. As a result, plants and animals are dying out, and disasters like floods and cyclones are happening regularly.

Floods and hurricanes occur more often now.



Chemical fertilizers harm the soil. They also seep inside the land and pollute water under the ground.

DID YOU KNOW



Some scientist fear that if the earth's climate continues to change, one million species of plants and animals might become extinct by 2050.



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16

WHAT YOU CAN DO...



April 22 is Earth Day! People all over the world come together to find ways of protecting the earth. It's like having a giant birthday party! But we don't have to wait for Earth Day to do something nice for the earth.

Here's what we can do around the year.

- Plant trees.
- Walk or cycle (instead of using a car). You will not pollute the environment by using fuel.
- Reuse. If you reuse items like paper, cloth, and plastic, less raw material will be used to make them and there will be less damage to the environment.

- Recycle. Paper, plastic, glass, and metal can be recycled to be used again. All you have to do is put your waste into the right bins!

If you can get your friends to join, all of you can make a real difference in saving the earth.



INDEX

- Alfred Wegener 5
- carbon dioxide 15
- continent 4, 5, 8
- core 9, 10
- cyclone 15
- dinosaur 7
- Earth Day 16
- electricity 12, 13
- fertilizers 14, 15
- flood 15
- geothermal energy 10, 12, 13
- generator 12, 13
- geyser 10, 11
- human beings 7, 14
- magma 8, 9, 10
- mantle 9, 10
- Pangaea 4, 5
- spring 10, 11
 - hot spring 10, 11
- turbine 12, 13
- volcano 7, 8
- water 3, 6, 10, 11, 12, 13

THIS IS A
GREEN
BOOK



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EARTH **the Blue Marvel!**

Did you know that Earth is many billion years old, but human beings like you and me only appeared about 35,000 years ago!? Did you know that Earth's core is as hot as some parts of the sun?

Discover many more fascinating things about your very own planet, Earth!

Other books in this series:

Sun: The Great Ball of Fire!

Wind: The Air in a Hurry!

Water: The Big Splash!

Soil: The Precious Earth!

Space: The Great Beyond!

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